

In the Claims:

Please amend the claims as follows:

What is claimed is:

1. (Currently amended) A method for manufacturing plate stacks, for the production of coolers, cooler elements or heat sinks comprising at least one plate stack for cooling electric and/or opto-electric components, wherein the method comprises at least the following process steps:

manufacture of plates or boards of metal,

stacking of the plates to form a plate stack,

joining of the plates with ~~the~~ an application of heat at a joining temperature (TF) and at an atmospheric pressure or in a vacuum in a joining or bonding process step to form a bonded plate stack,

cooling of the bonded plate stack formed by the joined plates to a temperature below the joining temperature (TF); ~~and~~

placing of the bonded plate stack into a chamber for a post-treatment; and

post-treatment (HIP treatment) of the bonded plate stack inside the chamber in an inert gas atmosphere at an inert gas pressure (PB) between 200 and 2000 bar, and at a post-treatment temperature (TB) that is below the joining temperature (TF).

2. (Previously presented) The method according to claim 1, wherein the post-treatment temperature (TB) is approximately 95 to 99% of the joining temperature (TF).

3. (Previously presented) The method according to claim 1, wherein the post-treatment temperature (TB) is at least 50% of the joining temperature (TF).

4. (Currently amended) The method according to claim 1, wherein post-treatment of the plate stack in an inert gas atmosphere is conducted at a gas pressure between 200 and 2000 bar, and at a post-treatment treatment temperature (TB) corresponding to approximately 50 – 99% of the temperature at which all metal components of ~~the~~ a system forming ~~the~~ a joining connection have solidified.

5. (Currently amended) The method according to claim 1, wherein post-treatment of the plate stack is conducted in an inert gas atmosphere at a gas pressure between 200 and 2000 bar, and at

a post-treatment treatment temperature (TB) corresponding to approximately 50 – 99% of the temperature at which all components of ~~the~~ a brazing metal forming ~~the~~ a joining connection have solidified.

6. (Currently amended) The method according to claim 1, wherein a joining material is applied at least to ~~the~~ surface sides of the plates to be joined.

7. (Currently amended) The method according to claim 1, further comprising the following process steps:

application of a brazing metal as joining material to the plates,

stacking of the plates to form the plate stack,

heating of the plate stack at least to ~~the~~ a melting temperature of the brazing metal,

cooling of the plate stack to a temperature below the melting temperature of the brazing metal, and

HIP post-treatment of the plate stack.

8. (Currently amended) The method according to claim 1, wherein during the HIP post-treatment ~~an inert gas atmosphere~~, an inert gas atmosphere formed by argon or nitrogen with a maximum oxygen content is used that amounts to approximately 300% of ~~the~~ an oxygen content corresponding to ~~the~~ an equilibrium oxygen partial pressure at the post-treatment temperature (TB).

9. (Previously presented) The method according to claim 8, wherein the oxygen content in the inert gas atmosphere is less than an oxygen partial pressure of 15×10^{-6} bar.

10. (Previously presented) The method according to claim 1, further comprising the following process steps:

application or creation of a copper-oxide layer as joining material on the plates made of metal,

heating of the plates after stacking to a temperature between 1065 and 1083°C, and

HIP post-treatment of the plate stack at a pressure between 200 and 2000 bar, and at a post-treatment temperature of at least 390°C and no more than 1052°C.

11. (Previously presented) The method according to claim 1, further comprising the following process steps:

application or creation of a copper-oxide layer as joining material on the plates made of metal, and heating of the plates after stacking to a temperature of 1065°C and HIP post-treatment of the plate stack at a pressure of 1000 bar at a post-treatment temperature of 1020°C.

12. (Previously presented) The method according to claim 1, wherein the joining of the plates takes place with the application of heat at a mechanic pressing force between 20 and 2500 bar.

13. (Currently) The method according to claim 1, wherein the plates are made of copper and that silver is used as the joining material, forming together with ~~the~~ an adjoining copper a silver-copper alloy, that in order to join the plate stack, the stack is heated to a temperature between 778 and 990°C, and that the HIP post-treatment takes place at a pressure between 400 and 2000 bar at a post-treatment temperature of at least 252°C and no more than 767°C.

14. (Currently amended) The method according to claim 1, wherein the plates are made of copper, that silver is used as the joining material, forming together with ~~the~~ an adjoining copper a silver-copper alloy, that in order to join the plate stack, the stack is heated to a temperature of approximately 850°C, and that the HIP post-treatment takes place at a pressure of approximately 1200 bar at a post-treatment temperature of approximately 650°C.

15. (Currently amended) The method according to claim 1, further comprising the following process steps:

use of plates made of copper and gold or a gold-copper alloy as ~~the~~ a joining material, heating of the plate stack to a temperature between 880 and 1065°C, and post-treatment of the plate stack at a temperature of at least 408°C and no more than 877°C.

16. (Currently amended) The method according to claim 1, further comprising the following process steps:

use of plates made of copper and gold or a gold-copper alloy as ~~the~~ a joining material,

heating of the plate stack to a temperature of 1030°C, and

HIP post-treatment of the plate stack at a temperature of 920°C and a pressure (PB) of 900 bar.

17. (Currently amended) The method according to claim 1, wherein at least one electric component is fastened to the plate stack or to ~~the~~ a cooler formed by the plate stack, by means of brazing, and the component is a laser diode or light-emitting diode.

18. (Previously presented) The method according to claim 1, wherein a joining material is ~~also~~ applied to surfaces of at least some openings.

19. (Cancelled)